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IN TWO SECTIONS

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## EDITORIAL DEPARTMENT NOTE

For the first time we are publishing in a single issue of the N. A. C. A. Bulletin two articles by the same author, but in doing this we are not deviating from previous practice in combining related articles in the same issue, for both of Professor Fiske's articles deal with inventories. There seems little need to stress the current importance of inventory control with the write-down of last year still a fresh if not happy memory. Our first article is a study of current methods for controlling inventories with conclusions regarding inventory control practice which have developed from the study. Regarding the timeliness of the second article on inventory valuation, readers of the Bulletin will recall several articles during 1936 and 1937 when business was improving and prices advancing in which various methods for handling inventory profits were discussed. We are now in a period of low prices, but ultimately, if history can be relied on, prices will again move forward. When this upward movement starts, inventory profits will begin to accrue and the problem of their treatment will again need to be faced. The present, therefore, seems an appropriate time to consider the various methods available.

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JULY 15, 1938

# INVENTORY CONTROL UNDER FLUCTUATING PRODUCTION

**By Wyman P. Fiske, Associate Professor of Accounting, Massachusetts Institute of Technology, Boston, Mass.**

THE LAST ten years have produced almost unbelievably great variations in business volumes and have included other economic characteristics which have made successful management of inventories extremely difficult. In spite of its importance, the problem of inventory control and management under conditions of fluctuating volume has received comparatively no attention in published sources. It appears particularly timely at the moment to consider the factors involved and some of the possible approaches to a solution of the problem.

The discussion will be divided into three sections. It will be concerned first with the business significance of the problem. This will be followed by a summary report on actual practices by which the control is being sought in a group of companies which have co-operated in an investigation on which this paper is substantially based. The final section will consist of conclusions drawn from the investigation, as to the important elements and the best approaches to a solution.

*Significance of the Problem*

Many actual companies could be cited as witnesses to prove the losses resulting from unsuccessful inventory control under conditions of varying volumes. Most companies have, at one time or another, lost some business because of failure to provide adequate inventories. Many have suffered inventory losses when declining volumes found them with excessive inventories. The sheriff has made many a call which is directly traceable to inventory losses.

Most of the difficulty arises from excessive inventories. There are, however, isolated cases where substantial losses are experienced because of an undue worship of turnover. The investigation developed one or two such cases. These were the exception, however. The general rule is excessive inventories when business turns down. Four sources of loss were found, three definite and tangible, one less apparent but nevertheless important. Price

losses are the most spectacular, particularly in the case of inventories of basic raw material. Style obsolescence follows closely in importance. Annual models raise that problem in some cases, and the whims of public demand produce it in others.

Deterioration and spoilage are a third cause of loss, potentially great in industries where freshness is important or where perishability is a product characteristic. The fourth source is financial in nature. Capital is tied up and charges are incurred to carry excessive inventories. The capital cost is intangible unless funds are borrowed. It is, nevertheless, real. Carrying charges, other than interest, are tangible and directly reduce total profits by the amount of the outlay. For inventories of high value or requiring expensive storage conditions, these costs can be substantial. More than one case of financial difficulties has been traced to such an unprofitable freezing of capital in inventories which can be liquidated only at great loss.

Already the 1937 inventory losses resulting from the current depression are appearing in published reports. There is a continuing effect this year in the form of decreased production and unabsorbed overhead, while excessive quantities are being worked off. Sales prices reflect the same conditions; in some cases the price situation is demoralized and chaotic. There seems little need of further elaboration to prove the importance of the problem. If the investigation has shown nothing else, it has indicated a general feeling of too little success in inventory control and an intention to do better next time.

*Types of Volume Fluctuations*

One further point requires consideration before commencing the report of actual practices. The sources of volume fluctuations are significant. There are three, usually referred to as seasonal, cyclical, and random. Each presents its own problems and demands its own approach. Success varies widely, from usually good results as to the seasonal problem to poor results and even to failure in other phases. Seasonal fluctuations in volume are traceable to fairly predictable weather characteristics. On the other hand, even the economists do not agree as to the causes of the broader movements which they call cyclical. There is far less regularity in these curves than in seasonal variations, and

cyclical characteristics include price movements which are potentially disastrous to those who manage badly or not at all. Random fluctuations are what the term implies, changes entirely irregular and attributable to chance or unusual conditions. The N. R. A. boom of 1933 is an example. The problem raised by random movements is made difficult because both the intensity and the extent of the force must be predicted if success is to be attained. Thus, in the binder twine industry, random weather conditions are an important factor since all sales are concentrated in short selling seasons and unusual weather conditions prior to harvest may upset carefully laid plans.

*Results of the Investigation*

This paper and the investigation on which it is based were undertaken upon the initiation of the Bridgeport Chapter. It was felt that a study and report on actual practices might constitute some contribution to the topic. Accordingly, an assigned investigator[1] visited and interviewed various executives in sixteen different companies representing almost as many different industries. We contacted by mail about two dozen other companies. Half of the companies visited are in the Bridgeport area; all are represented in the National Association of Cost Accountants. Industries covered in Bridgeport and other places included silverware, plumbing, rope, soap, leather, drugs, paper goods, textiles, rubber, cutlery, brass, electrical, office supplies, roofing, machinery, and miscellaneous specialties. While the total number is obviously too small to constitute a real statistical sample, the range of industries and of the possible phases of the problem appears satisfactory. Co-operation was very gratifying and a tribute to the interest of our members in the work of the Association.

The investigation sought to discover as to each company the importance of the problem, the parts of the inventory affected, the reaction of the industry to cyclical conditions, the extent and success of forecasting business conditions, the methods followed and success attained in inventory control, and the general attitude toward the whole inventory problem. The volume of material col-

[1] The investigation was carried out by Mr. Donald G. Robbins, Jr., a graduate student in the Department of Business and Engineering Administration at Massachusetts Institute of Technology.

lected was so great that only a bare summary of important points will be possible here.

*General Attitude Toward the Inventory Problem*

It seems logical to report first on the general attitude toward the whole inventory problem, since that attitude is the spring whence flow the details of method. The range was from an acceptance of inventories as a necessary evil to inclusion of inventories as an integral element in broad administrative policy. Some emphasized purely production aspects, others, financial phases, and a few refused to allow any point of view to dominate. Five objectives of inventory control were advanced: service to customers, service to production, improved industrial relations and personnel management, speculative profit, and financial strength. The companies which look upon inventories merely as a necessary evil seek a turnover as high as is consistent with satisfactory service to customers, or use the inventory for price speculation. Others balance turnover, financial considerations, service and personnel considerations against each other, seeking, to the extent consistent with the financial risks involved, a reduction in productive activity fluctuations, a lowering of labor turnover, and continuous jobs for a constant force.

*Raw Materials Problem Most Severe*

Control of inventories in relation to changing activity is, of course, but one aspect of the broader problem of inventory management. Its importance varies from industry to industry and in different sections of the inventory. We found that the most likely source of difficulty is the raw materials inventory. This is due to several facts. Many raw materials are characterized by violently fluctuating prices, that show no correlation to movements of prices of the finished goods of which they are the most important part. Speculative positions are frequently unavoidable, as where commitments must be made at time of harvest. Then again, the time lag between purchase and sale is at a maximum in the case of raw materials, allowing maximum time for market changes. In many cases raw material costs are a substantial or even predominant part of the cost of the finished

product. This condition, found in such industries as textiles, tanneries, hatters, rope, and soap, makes raw material inventory management a critical problem in every case.

Finished goods inventories run a close second to raw materials, but for different reasons. Obsolescence is an ever present risk. Style is important. Sudden changes in demand are fairly common. The problem is frequently accentuated by long manufacturing cycles and short selling seasons, both of which necessitate rather long-range forecasts and the taking of important speculative positions on the basis of such forecasts. Industries which experience the finished goods problem include silverware, pipes and valves, novelties, clothing and radios.

*Three Aspects of Problem*

The practices followed in attempting a solution appear to have three aspects. There is a recognized requirement for information as to actual conditions, a similar need for information (forecasted) as to what business is to be in the near and distant future, and a problem of reflecting in purchasing and production the inventory policy adopted. We found general satisfaction and success as to the first phase. All of the companies visited had a material control system that provided, more or less accurately and quite regularly, detailed and summary information regarding the size, distribution and location of the inventory. The frequency and detail varied directly with the acuteness of the inventory problem and with the difficulty of control. Almost all the companies used a card system with a card for each item or each class of items, showing generally: the activity and movement of the item over a period of time, often as long as five years; the amount currently in stock; the location of the inventory; its use in the finished product; stock limits; and segregations on account of orders not yet in production.

As to the second element in the problem, that of information as to the future course of business, the situation was definitely less satisfactory. Performance varied widely and for several reasons. Some companies have given the problem little or no attention. Some face a real dearth of statistical background. A few are subject to a complication of random factors which make forecasting extremely difficult, if not impossible.

The obvious advantages of eliminating seasonal fluctuations from production and the relative simplicity of this phase of forecasting account for fairly general success in this particular area. Use of the inventory to permit the leveling of production from one season to another is also common and is generally recognized as a legitimate management device where the nature of the product permits.

*Forecasting Cyclical Movements*

It is in the other two areas of forecasting that conditions are generally less satisfactory. These are forecasting prices and cyclical movements. Relative success seems to depend upon having one man devote all or most of his time to the problem. In the companies that do a large amount of price speculation in raw materials (such as textiles, tanning, etc.), there is usually one man, either the buyer, treasurer, or president, whose job it is to watch the market and forecast prices. The man who has this responsibility is usually an older, experienced man with high analytical judgment, courage, and what amounts to a sixth sense. Smaller companies which cannot afford a full-time man on this function are under a handicap and must depend heavily upon other methods.

We found many approaches to forecasting cyclical movements. Some companies base their forecast on sales estimates by the sales force. Some use a multitude of general economic statistics. Others merely project their own present apparent trends, a method which has obvious limitations. Some depend upon economic services. A few use a lag or lead relationship to published series. Still others base their conclusions on executive judgment derived largely from general reading. Perhaps the most successful companies have combined almost all of these methods, giving each proper weight and synthesizing a forecast, not of what will certainly come, but of what is the most probable thing to come. The really surprising fact was that only a few of the companies made any attempt at cyclical forecasting *per se*.

*Control Devices Used*

With a varying background of facts and forecasts, the companies use different control devices to accomplish their different

objectives. The two points of attack seem to be purchasing policy and routines and production authorizations. Thus, in the case of raw material, control of authorization to commit for purchases and of production programs require attention; for goods-in-process it is new orders started through and the program for finishing up orders in process; in the case of finished goods, sales can be controlled only to a minor degree, but the amount of goods finished is subject to manipulation. Two elements are common to control of all parts of the inventory: purchase and production authorization.

The location of authority to commit for purchases or to issue production orders appeared to depend upon the number of items that must be started into process, the value of each, both absolutely and in relation to total product cost, and the cost to the company if a mistake were made. Most companies had stock limits on at least a part of their inventory. Maxima-minima control is the simplest system; under proper instructions it can be largely operated by clerks. Wherever there are a large number of items to be controlled, many of which are standard and most of which are of low value, the source of the authorization is an order point set by an executive, often minor, and a purchase requisition for a standard quantity by a stock clerk. Maximum and minimum limits and order points are fairly generally subject to review by the inventory manager; usually, the requisitions cross his desk as a matter of routine, in order to permit at least a casual check. Where this executive has good judgment and is informed as to objectives and expected conditions, this procedure provides for desirable flexibility in control. In some instances, the stock limits are used to bring an item to the attention of an executive who decides not only whether the item shall be ordered, but also what quantity should be ordered.

In a few cases, the budget is being used as the source of both the purchase and production authorization. Use to authorize production schedules is the more frequent. Both are limited to larger companies which have been working with the budget for an extended period. Usually, stock limits are used in addition as a check on the budget, and serve to bring an item up for review whenever quantities exceed the limits in either direction.

In job order plants, the production authorization is usually a copy of the sales order. We found a few cases where the sales department also directly controls the purchase authorization, although it is much more common for the production department to authorize purchases of materials after its own analysis of the sales order. The placing of responsibility for production authorization in the sales department was also exemplified in industries making highly styled merchandise. Here the merchandise manager was considered to represent a proper balance between the sales and production points of view. The plan seems to have worked well where we found it.

Top executives are a direct source of the authorization for certain types of purchases. Usually the more difficult the decision and the greater the cost of a bad decision, the higher in the executive scale the authorization starts. Top executive responsibility is particularly characteristic where speculation in the raw materials is a matter of policy. In textiles, for instance, the treasurer or president decides when and how much to buy. High executives indirectly initiate purchase or production authorizations in other cases. For instance, if the inventory policy is changed to permit accumulation by increasing the stock limits all along the line, a flock of production and purchase requisitions will be started in response to the change.

*Price and Demand Speculation*

We were particularly interested in the extent of conscious speculation. All companies speculate to some degree, either as to prices or potential demand. Where there is a long manufacturing process, it is unavoidable. The degree of speculation varies widely as between companies, running all the way from the use of speculation as the primary source of profit to cases in which there is no conscious speculation and even a conscious avoidance of it. One company goes so far as to have its day's requirements of its principal raw material delivered at its plant each morning; no reserve is carried. At the other extreme many tanneries and textile companies look to price speculation as the primary source of profit or loss. In general it appears that speculative activities have been only moderately successful. This has been due at least in part to a failure to recognize all phases of

speculative possibility and to develop a policy based on this knowledge. Perhaps those companies have been most successful which have been able to stay in the middle ground, avoiding price speculation rather completely but carrying on a moderate amount of demand speculation, and using speculation to protect profits rather than to make them.

*Conclusions Suggested by Study*

So much for our report on conditions as we found them. There remains only a more subjective summary of what appear to us to be the significant conclusions. Eight points appear worthy of emphasis:

**First: The approach to the inventory problem must be an administrative approach and not merely departmental in its point of view.** If there is any one thing that is clear as a result of our study, it is that inventory policy has its implications in every division of the business. Maximum turnover can be obtained only at the cost of production delays, loss of orders, sharp fluctuations in productive activity and high labor turnover. Constant production involves fluctuating inventories with financial problems and great risk of spoilage, obsolescence, or price loss. Inventory policy in each individual case must be founded upon a compromise between conflicting interests and aimed toward administrative balance. It is a major administrative problem. We were interested to note how far ahead some companies were looking in the inventory policy and how near-sighted and opportunistic others were. The far-sighted companies tried in every way to use the inventory for the best advantage of the enterprise; as an aid in industrial relations; for occasional speculation to protect profits; and for various kinds of service.

**Second: Control must rest upon knowledge as to present facts and forecasts as to future conditions.** Control implies a conscious direction of something. Inventory control presupposes information as to present facts and a conclusion as to the desired direction of change, if any. An intelligent decision as to the desired direction of change is inconceivable without some assumption as to future conditions. A plan of action is similarly impossible without like assumptions. Specifically, this means that

forecasting is unavoidable. Since so much policy depends upon forecasting, it demands serious attention. Lack of information on the part of management as to the normal seasonal characteristics of any business is almost inexcusable. Cyclical forecasting is more difficult. That great precision is impossible of attainment is, however, no reason to avoid the attempt. It is particularly important that cyclical trends be sharply differentiated from seasonal trends. The two cannot successfully be treated together in forecasting.

**Third: Speculation is unavoidable.** There is considerable misunderstanding as to this point. Any commitment in inventories is a speculation. Increasing production in anticipation of increased sales is just as much a speculation as price speculation, even though the latter may be more spectacular. There are times when a price speculation may be less risky than a demand or style speculation. The important point is again that recognition of the problem is a prerequisite to solution. Denial of the speculative element is an ostrich approach. Inventory control policy must be based upon a realization that speculation is not only a risk but a tool to be considered in deciding upon inventory policy.

**Fourth: A do-nothing attitude will make net inventory losses inevitable.** Two few realize that ordinary control routines operated mechanically are certain to result in inventory losses which are greater than any profits possible. Inventory losses tend to be concentrated in the crisis phase of the business cycle; inventory gains appear in the recovery phase on the basis of increasing volumes and stiffening prices. Anything approaching a constant turnover will result in maximum inventory quantities at the peak of the business cycle and minimum quantities in the depression trough. Thus losses will be taken on maximum quantities while profits will be possible only on minimum units. Some companies in the peak of prosperity consciously drag their inventory below the point where they can give adequate service because they realize that some orders will be cancelled and that a reduction in inventory quantities may avoid more loss than the profit they might make on a few more orders. Speculation to protect profits is to be distinguished from speculation to make profit. Certainly companies in which inventory losses are import-

ant may well consider devices to keep inventories down as business reaches the peak and may well accept as desirable a much lower turnover when business is poor. Demand speculation as carried out by most business, is a more subtle but equally dangerous form as compared with price speculation. It serves to build up a basis on which, in case of bad forecasting, large price, spoilage, or obsolescence losses may be taken when business turns for the worse. With avoidance impossible, intelligent use of the right kinds and timing of speculation demands judgment and courage.

**Fifth: Different types and degrees of control are called for by different parts of the inventory; the same is true for different industries and different parts of the cycle.** This principle needs little discussion as to types of inventory and industry. Goods-in-process inventory presents relatively minor control problems as far as cyclical conditions are concerned, for it is from this point of view primarily a link between raw material and finished goods, the two important speculative points. Certain industries face an acute problem because of unsettled price conditions or style factors. In all industries the inventory problem becomes more important as business approaches the peak of the cycle. The particular characteristics of each industry require consideration in policy making.

**Sixth: There are a series of devices useful in the problem of control under varying activity conditions; all are directed at controlling purchase commitments and production authorizations.** These devices have already been indicated in the previous discussion. They are repeated for clarity and summary.

(a) Maxima and minima points may be varied at different stages in the cycle. This will affect the total size of the inventory.

(b) Control may be exercised through turnover, leaving the responsibility for the make-up of the inventory to an inventory manager. This is analogous to the open-to-buy concept used in department stores.

(c) The budget may be used as a basis for production and purchase authorizations. Planning should, of course, include definition of the desired size of the inventories.

(d) The problem may be left entirely to the judgment of one or more high officials. This is a type of approach used where the speculation is an important element.

In the usual situation at least two of these devices will be found and can be justified for different parts of the inventory. A maxima-minima control may work for supplies, while top executive control is demanded for a few basic raw materials.

**Seventh: Flexibility is an essential element.** This principle cannot be better illustrated than by reference to the common maxima-minima basis for inventory control and purchase authorization. If minima and order quantities are large enough for high activity levels, they are too high for low levels. If they are low enough for poor business, there will be production delays and lost sales when business is good. To meet changing conditions there must be flexibility.

**Eighth: There is no mechanical substitute for human judgment.** Changes in business activity are the result of an interplay of complex economic forces in which different elements have from time to time differing weights. Under such conditions great judgment is necessary, for no mechanical system can be devised to meet the complexities. There must be judgment in forecasting, judgment in decision as to proper policy, and judgment in execution. Responsibility must be placed with due regard for the degree of judgment required and for the cost of mistakes. There can never be a sound program based on an assumption that the problem can be reduced to mere routines. There is no mechnical substitute for brains and judgment.

In conclusion: At the moment business men are inventory conscious. Inventories are generally recognized as an important problem. It is to be hoped that this attitude will promote a more generally constructive approach. Inventories should be a tool of management, managed throughout the cycle for the greatest good to the business. This broader attack requires a frank recognition of all the elements of the problem, use of the best technical methods available, and, above all, sound judgment and great courage.

# INVENTORY RESERVE PLANS

**By Wyman P. Fiske, Associate Professor of Accounting, Massachusetts Institute of Technology, Boston, Mass.**

## A. Introduction

*Importance of Prices as Profit Factor*

Price fluctuations are familiar to business men, all of whom recognize price oscillations as a profit factor, serving at times to expand profits, and at other times constituting a source of major loss. Nevertheless, the large part which prices play as a factor in total profits is not as widely recognized as it should be, for the simple reason that the amount of profit which can be directly traced to price changes is not usually determined by business men.

Two illustrations, one from the packing industry and the other from the manufacture of farm machinery, will show the possible magnitude of price gains and losses in relation to total profits. The packing industry obviously is one operating under conditions of extreme and rapid price changes. Packing companies have therefore been forced to give particular consideration to the problems arising from price changes. In 1934, Swift & Company felt it necessary to set aside $6,500,000, out of a net income of $11,400,000, as an appropriation to cover possible price declines. While there was no definite statement that this was exactly the amount of the price gain, there was the implication that it was at least an approximation of this type of profit. The amount set aside was almost 60 per cent of the total net income for the year. A further appropriation of $6,000,000, or 45 per cent of the net income for the year, was felt necessary in 1935.

The International Harvester Company offers the other example. Price problems have long been a factor affecting its accounting policy. Although its methods have changed, some sort of inventory reserve plan has been in use for twenty years. In 1934, it reported a net income of $3,948,600, after including as a deduction, "Provision for Inventory Reserve—$3,500,000." Thus its reported profit for the year was only one-half of that which would have been reported under more conventional techniques. An additional $5,000,000 was set up in 1935.

*Financial Effect*

The significance of price changes is to be found not only in their effect upon profits but also in their financial effect. This phase is well described in the 1935 Yearbook of Swift & Company (covering the period from October 28, 1933 to October 27, 1934), where it is stated by the President:

> I wish particularly to stress the point that profits on inventory, due to rising prices, disappear quickly when prices fall. Experience has shown that they can go as unexpectedly as they come. During the period they stand on our books, they provide no additional cash for the payment of dividends, for the maintenance of property, or for plant extensions. On the asset side of our balance sheet, they are in the inventory account in the form of higher-valued products. While it is true that inventories are constantly being sold and cash is realized, the cash so obtained must be reinvested in new inventories at the higher level of prices if our trade is to be taken care of.
>
> We are, of course, glad to have inventory profits; in fact, we must have them in a period of rising prices if our working capital is to be preserved. But inventory profits are really capital gains, part of which should remain in the business as insurance against losses resulting from falling prices. Had the financial and business community given proper recognition years ago to the real nature of inventory profits and the distinction between such profits and cash profits, all of us would be better off to-day.
>
> What we need and are seeking most of all is cash profits, profits that can be paid out in dividends or reinvested in the business as occasion requires.

It thus appears that the volume of price profits must be recognized in determining sound dividend policy and in working capital financing. Specific financial effects are well illustrated by the experience of the Firestone Tire & Rubber Company in the 1920's. During a portion of this period, the British Rubber Restriction Act was in force with a marked effect on prices and financial problems. To quote from the 1925 annual report:

> The operation of the British Rubber Restriction Act has reduced the world's working supply of rubber far below the normal requirements of the industry. This has caused an increase in the price of rubber during the year, ranging from a low of 36 cents to a high of $1.23, with the present price around $1.00 per pound. Due to this increased cost of crude rubber and the rapidly expanding business of your Company, your Directors deemed it advisable to provide further working capital and during the past month have issued an additional $10,000,000 of the authorized 7 per cent Preferred Stock. Before this financing, the Company again closed its fiscal year with no bank indebtedness.

And from the 1926 report:

> At our last Annual Meeting I advised you that during the year rubber had ranged in price from a low of 36 cents to a high of $1.23 and that the price on that date was around $1.00 per lb. The operation of the British Rubber Restriction Act gave 100 per cent releases on February 1st this year

and rubber again dropped to 36 cents per lb. (Rubber is now selling around 37 cents per lb.). It is necessary for your Company to have purchases in the East, afloat, and stock in Akron equal to four months' consumption, and as we use approximately 10,000,000 lbs. per month, it is very evident that these wide fluctuations in price made it a difficult year for large manufacturers.

The question mark attachable to the validity of surplus under such conditions hardly need be mentioned.

*Effect upon Profits under Graduated Undistributed Profits Tax*

Final proof of the significance of price profits may be found in a consideration of the undistributed profits tax. Price profits are not a proper or safe basis for dividends. Yet, if dividends are not declared, the profits as reported are subject to a graduated tax which, under the 1936 law, could reach a rate as high as 27 per cent.[1] Thus under a graduated undistributed profits tax, currently accepted bases of valuing inventory have the effect of increasing substantially the tax bill of those businesses which suffer from extreme price fluctuations. This condition alone is sufficient to warrant a serious study of the situation with a view to elimination of this inequity between concerns differently affected by price changes.

## B. Types of Inventory Reserve Plans

*A Number of Alternatives Possible*

Several approaches to a solution of the problems raised by the price phenomenon have been attempted and may be found reflected in published corporate reports. The title of this paper was selected with the definite intention of including all varieties of plans rather than of confining the discussion to some of the more widely publicized plans. All inventory reserve plans have as their objective the determination and reporting of accounting facts necessary in a sound approach to solving the business and investment problems raised by price fluctuations.

One group of procedures is based upon an underlying philosophy that profits should be so defined as to exclude price gains.

[1] As this is being written, the undistributed profits tax is in conference committee. Reduction of the tax appears probable. So long as the tax remains in any form, the argument holds.

Such companies usually report their net income exclusive of both price profits and price losses. A second group of companies recognizes the financial aspects of the problem but seeks a solution through a method which still permits of the inclusion of price gains and losses in reported net income. Although arguments may be advanced in favor of both, the concept of profits held by the first group (excluding price gains and losses from income) has been widely attacked and has only a narrow acceptance. Unfortunately, all proposals for inventory reserves tend to be grouped together, with the result that the objection to this profits concept has tarred all with the brush of radicalism. Perhaps, too, the plans have suffered from their support by individuals who advocate various degrees of stabilized accounting.

Another classification of the plans is possible: those which attempt to meet the problem through use of appropriated surplus reserves set up on the liability side of the balance sheet; and those which value inventories on bases other than the conventional cost or market, whichever is lower. Wide differences in balance sheet presentation of the information exist, with bad effects on comparability and analytical use.

*Illustrative Cases*

A few illustrations of various types of plans will demonstrate the contrasting effects. As an example of a company using a surplus reserve to meet the price problem, The Goodyear Tire & Rubber Company may be cited. On its balance sheet of December 31, 1925, there appeared a special raw material reserve amounting to $7,500,000. (See Appendix, page 5.) In regard to this new surplus reserve, the following was included in the text of the annual report.

> We have already reported to you that your Board of Directors appropriated $3,000,000 out of the first six months' earnings as a "Special Raw Material Reserve" to partially provide against a possible decline in crude rubber values. While our rubber inventories and commitments at cost were substantially under market values on December 31, 1925, the market continues to fluctuate violently on levels that are abnormally high and economically unsound. In the belief that considerable shrinkage in values is still possible and that should this materialize abruptly the Company should be prepared to meet the emergency if and when it occurs, your directors have increased the Special Raw Material Reserve to a total of $7,500,000. This entire amount has been appropriated out of and is shown as a deduction from 1925 earnings.

The subsequent history of this reserve shows charges to it in 1926 (see Appendix, page 6) and 1928 and an addition to it in 1927. Beginning with 1928 the reserve was merged with the Reserve for Contingencies and so lost its separate identity. Among other companies which include a reserve on the liability side of the balance sheet can be mentioned the American Smelting and Refining Company, the Plymouth Cordage Company, and the Endicott Johnson Corporation.

The group of companies which have met the situation by revaluation of the inventory on a basis other than cost or market, whichever is lower, have accomplished the result in at least two different ways. The United States Steel Corporation and the International Harvester Company have at various times set up special inventory reserves which have been deducted from the inventory on the asset side, thus bringing the value of the inventory below a cost or market, whichever is lower, basis. An explanation of the use and effect of the reserve plan used by the International Harvester Company was included in the 1932 report as follows:

> The deficit for the year made it necessary to transfer $10,000,000 from general reserves to surplus. These reserves, on which we also drew heavily in 1931, were established from earnings of prior years as a blanket protection against market declines in inventories throughout the world, decline in dollar exchange value of current assets in foreign countries, and other unforeseen contingencies. Years of experience have shown that a world-wide business such as ours is subject to many contingencies and losses not predictable as to time, place, nature or extent. This policy of providing general blanket reserves has seemed to the management the best protection against such contingencies, and we are fortunate in having them available at this time; they are necessary insurance, operating for the benefit of both stockholders and customers and should be renewed when earnings again permit. The balance of these blanket reserves not yet used is $15,000,000. This has been applied in the balance sheet as a deduction from inventories, such inventories having been valued at cost or market, whichever was lower. How much of these reserves may be required to meet further declines in prices and foreign exchange rates depends, of course, on the economic conditions prevailing during the next few years.

A further deduction from this reserve was made in 1933 and additions were resumed in 1934 and 1935. During and following the war period, the United States Steel Corporation used a similar reserve which equalled the excess over values at the close of 1915. The Steel plan differs from that of the Harvester Company in that it appears to reflect a more definite attempt to main-

tain a reserve sufficient to absorb losses down to a specific price level.

The plan which has had the greatest publicity, namely the so-called Base Stock or Normal Stock Principle, is a further illustration of a policy involving a revaluation of inventories. Under this plan a minimum or normal stock is carried at an unchanging price regardless of actual price fluctuations. In periods of rising prices this portion of the inventory is always valued at the lower prices in force before the price rise started; the higher the level which prices actually reach, the greater will be the divergence between reported inventory value and cost (which under rising prices will be less than market).

Since the plan, as ordinarily operated, follows the principle that income should exclude price gains and losses, reported net income also varies from the conventional figure as prices fluctuate. Computations by T. H. Sanders[2] show that this effect in the case of the National Lead Company has reached an amount as high as $5,600,000 and has resulted in showing a profit of $3,500,000 when conventional methods would have produced a loss of $2,100,000. In spite of, or rather because of, this effect, the Lead Company has been using the plan for over twenty years.

A final type of plan is somewhat different in its procedure from any of the others previously cited, although it likewise results in unorthodox inventory values. This is the so-called last-in, first-out basis of pricing goods into process and into cost of sale. Instead of charging goods into process at the price of the oldest units in the lot, the price is that of the newest units of the lot. As a result, charges to process tend on the whole to approximate replacement costs, and the inventory contains the oldest units as far as price is concerned. If this plan is started when prices are low, its effect is to keep inventory values at approximately those low levels, while sales are costed substantially on a replacement basis. This plan has received recent publicity through its recommendation to the petroleum industry by the Petroleum Institute. In its final effects it does not differ greatly from the base stock plan.

[2] *Journal of Accountancy*, December, 1926. "Some Variations in Inventory Valuations," p. 432.

### C. Choice of Policy

There is, then, a considerable array of alternatives from which to choose if the price risk in any industry is great and if the company wishes specifically to recognize price changes in its accounts. Thus consideration of the relative advantages and disadvantages of the different approaches is necessary if a logical selection is to be made. Many factors are involved, among which are tax effects, the effect upon annual profit figures and upon surplus, the effect upon the balance sheet, the effects upon stockholder and public relations, and cost and ease of operation. Because of its current interest, tax aspects provide a good starting point for discussion.

#### *Tax Aspect*

The tax history of inventory reserve plans has been most disappointing. Income tax regulations do not permit of the use of the normal stock basis, or of the last-in, first-out basis,[3] and any plan which involves a surplus reserve set up by an appropriation of income obviously is useless as a means of reducing income taxes. If the elimination of tax inequities is the objective, it would appear necessary to convince the Bureau of Internal Revenue that the definition of taxable net income should be restated so as to exclude price profits. The last-in, first-out basis and the normal stock approach offer the greatest possibilities in this direction since they are based upon such a definition of profits. A company claiming for tax purposes that price gains are not income, should follow the same theory in its own accounts if it is not to be accused of inconsistency. Prior to the enactment of the undistributed profits tax, the Government probably would have had a real advantage taxwise by permitting either of these plans, since the effect would have been to increase taxable net income in years of bad business when the income is most needed. The graduation feature of the undistributed profits tax, however, results in actual loss of tax income to the Government if it permits the use of these plans, since the Government will lose high bracket income in good years and gain low bracket income in bad years.

[3] *Editor's Note*: Since this was written the 1938 tax law has been passed, permitting the use of the last-in, first-out basis by the tanning and nonferrous industries for income tax purpose.

The proposal has been made that the tax problem can be met by successful group action to reinstate the carry-over feature. The carry-over provision would undoubtedly ameliorate the situation but it fails in two important respects. It has always been for a limited period only, and there is more than a chance that the period will expire before profits have made up the losses suffered, resulting in a definite tax loss. Further, the provision is absolutely no protection against progressive rate features in excess profits and undistributed earnings taxes. Sound finance requires that distributions in years of high profits recognize the inevitability of future losses; progressive rates on undistributed earnings result in rank discrimination against businesses operating soundly under conditions of high inventory risks.

Although not too much hope can be held out, attempts to obtain approval of the last-in, first-out and base stock principles will undoubtedly continue. Certainly both aim to correct a real inequity in our tax structure and, insofar as tax considerations are factors, the last-in, first-out and base stock approaches are to be favored over other plans.

*Effects on Profit and Loss Statement*

The effects of the several plans on profit and loss statements are quite different and fall into three groups. One group, which includes the base stock approach and the last-in, first-out basis, directly affects the cost of sales, decreasing income in years of increasing prices with a reverse effect in years of declining prices. Price gains and losses are excluded from profits. No indication of the amount of the effect on the profit and loss statement will appear unless specially computed and segregated. National Lead Company is the best example.

A second group includes the plans followed by the Goodyear Tire & Rubber Company (see Appendix, pages 5 and 6) and the International Harvester Company (see Appendix, page 4) and shows the addition to a surplus reserve as a deduction on the profit and loss statement, before arriving at net income. In these cases the amounts of additions to the reserve appear upon the face of the statement for those who care to see them. Charge-offs against the reserve will not appear unless specially segregated, since their effect is to reduce cost of sales. Net income

is shown after provision for price profit. This effect is clearly shown in the reports of The Goodyear Tire & Rubber Company for 1925 and 1926 (see Appendix, pages 5 and 6).

A final group sets up the reserve as a direct surplus appropriation. Under this approach, net income in years of rising prices will include price profits, but, in years in which inventory losses are charged against the reserve, net income will be increased by such use of the reserve. Thus the effect is to increase income in bad years but not to reduce it in good years. The method is objectionable for these reasons. Consistency in reporting net income, either as including price gains and losses or as excluding price gains and losses, would seem to be a minimum requirement. Further, since those who use any inventory reserve plans are still in the minority, it would appear desirable that disclosure of the amounts involved should be made. While this is not ordinarily done under the base stock approach, it can be and is done by some companies. The condensed profit and loss and operating surplus account of the Plymouth Cordage Company for the year ended September 30, 1936 (see Appendix, page 1) shows operating profits based upon inventories taken at the lower of cost or market, and then shows as a deduction the additions to the reserve revaluing the normal inventory and restating the operating profits excluding price gains. In this way both figures are indicated and analysis and comparison are possible. A similar treatment is used by Endicott Johnson Corporation (see Appendix, page 7.)

*Effects on Balance Sheet*

The balance sheet effects also differ considerably. Under the plan followed by the National Lead Company, the single inventory figure reflects two valuation bases. Minimum or normal quantities are valued at a minimum or base price, and the excess over normal is valued at cost or market, whichever is lower. The result is an inventory markedly different from current general practice. Since the prices used to value the minimum stock are set very low, the effect is to decrease apparent working capital in years of higher prices. Also, balance sheet comparisons with companies using other plans become extremely difficult. Balance sheet ratios are affected; in particular, the inventory turnover ratio

loses most of its significance. The plans followed by the United States Steel Corporation and the International Harvester Company are thus better than that of the National Lead Company for, even though the inventory is similarly valued on the balance sheet at prices less than cost or market, whichever is lower, the amount of the reserve is disclosed in the annual report. In the case of the United States Steel Corporation, the disclosure was to be found in the tabulation of the inventory. In the case of the International Harvester Company, the amount of the reserve is indicated in the text portion of the annual report. Both treatments make it possible to recast the figures for purposes of comparison and to determine working capital at current price levels.

Best of all the plans from the balance sheet point of view would appear to be those followed by the American Smelting and Refining Company, by the Plymouth Cordage Company, and by the Endicott Johnson Corporation. These companies value inventories in the current asset section at cost or market, whichever is lower, but set up, on the liability side of the balance sheet, a reserve to revalue the inventory down to the desired levels. This procedure provides full disclosure, makes the balance sheet directly comparable with balance sheets of other companies, and states working capital at current prices. At the same time, it provides the management with all necessary information for sound financial policy.

*Stockholders and Public Relations*

In a discussion with one controller, concerning the desirability of adopting some sort of an inventory reserve plan, it was brought out that the stock of the company in question was being used by investors as a hedge against inflation. Hence any plan which would conceal price profits and show inventories valued at other than cost or market, whichever was lower, would be a positive disadvantage in investment analysis. This situation illustrates the need of considering stockholder and public relations. Mere provision for the information requirements of management is not enough. Complete disclosure of accounting policies and significant figures is essential where unusual methods of accounting are followed. The importance of disclosure was well stated by the

Committee on Co-operation with Stock exchanges of the American Institute of Accountants, as follows:

> Most investors realize today that balance sheet and income accounts are largely the reflection of individual judgments, and that their value is therefore to a large extent dependent on the competence and honesty of the persons exercising the necessary judgment. The importance of method, and particularly of consistency of method from year to year is by no means equally understood.
>
> In considering ways of improving the existing situation two alternatives suggest themselves . . .
>
> The more practicable alternative would be to leave every corporation free to choose its own methods of accounting within the very broad limits to which reference has been made, but require disclosure of the methods employed and consistency in their application from year to year . . .
>
> Within quite wide limits it is relatively unimportant to the investor what precise rules or conventions are adopted by a corporation in reporting its earnings if he knows what method is being followed, and is assured that it is followed consistently from year to year.

Full disclosure enables the competent analyst to rearrange and adapt the statements to fit his particular needs. Where accounting policy affects comparability because of departures from general practices, it is the responsibility of the company adopting the new policy or procedure to provide a basis for comparison; this is a part of its obligation to its stockholders and to the public.

*Possible Effect Upon Credit*

A further possible difficulty where disclosure is not made as to the basis for valuation is the effect upon the credit of the company. There is a positive disadvantage in any accounting policy which precludes comparison of resulting statements with those of like enterprises. Bankers, credit men, and investors are rightfully suspicious of departures from widely accepted accounting practice. Analysis is made more difficult, and generally used standards are useless. Unless confidence in the management can overcome the handlicap, or unless the company gains the advantages of a "mystery stock," the effect upon credit may be unsatisfactory even though the plan followed is essentially super-conservative. The only way that this objection can be overcome is likewise by a frank disclosure of policies and discussion of the reasons for the adoption of the change.

Inventory reserve and basic inventory plans affect the statements in various manners. The least drastic effect from the point of view of analysis is that of inventory reserve plans using a

simple surplus reserve on the liability side of the balance sheet. The most drastic effect appears to be that caused by a treatment under the basic inventory type of plan which shows the basic or normal portion of the inventory among the fixed assets valued at a nominal price, with the excess over normal (or the speculative portion) among the current assets value at cost or market, whichever is lower. In this case working capital is sharply reduced because of the elimination of the major portion of the inventory from current assets. The widely used current ratio is distorted, and figures as to inventory turnover are seriously warped. Unless an industry as a whole adopts such a plan, comparison is almost impossible and, even if adoption is industry-wide, the analyst will need to reconsider his techniques and standards.

*Cost and Technical Difficulties*

Finally, the cost and ease of operating the several plans must be considered. Of course the least effect upon routine accounting procedure will be found where the principle of last-in, first-out is adopted and carried through the cost records. Most companies which have found an inventory reserve plan desirable have been able to overcome this difficulty comparatively easily. Under the base stock approach it is entirely possible to use the first-in, first-out basis in the cost records and then to make the adjustment from this ordinary method of accounting to the base stock method at the end of the period. One company in particular is determining its figures upon three bases. It shows its profit on the basis of cost or market, whichever is lower, on a replacement basis, and on the base stock approach. This particular company, in the metal business, finds the computations necessary to obtain all three profit figures comparatively simple.

## D. Conclusion

The profit effects of price trends are becoming rather widely recognized. To the extent that sales prices tend to be based on replacement costs of material, regardless of actual historical costs, profits and losses include an element representing the difference between cost and replacement values of inventories under ordinary methods of accounting for cost of goods sold. In those industries

which have relatively long processing cycles and suffer extreme fluctuations in basic raw material prices, the effect is tremendous and results in extraordinary swings in profit amounts. On rising markets profits skyrocket and on declining markets profits toboggan to equally great deficits. There is produced as a consequence a series of financial and administrative problems that demand serious attention. Dividend policy in good times must recognize and estimate the probabilities of future inventory losses. Inventory control must seek to maximize the profits and minimize the losses by alternate increases and liquidation of quantities. Taxes, under plans which do not permit carry-overs of losses, which include progressive rates on higher profit brackets, or which tax undistributed earnings at progressive rates, will result in substantial discriminations against industries of the types suggested.

The importance of the problems presented merits careful consideration of all proposals claiming to eliminate any or all the difficulties. Many have been made, varying from the use of adequate surplus reserves to the determination of profits on radically different bases of costing the goods sold. Most of them have had adherents with the courage to undertake their use, in some cases in very large and prominent companies.

It would appear desirable that some recognition of the price factor be given in the financial statement prepared for stockholders. How this should be done would appear to be considerably less important than the fact that it must be done somehow. Prices have already risen considerably from the lows of 1933 and, if economic conditions follow their normal course, are likely to rise still further. Add to these factors the inequities of an undistributed profits tax applied to companies with varying price risks, and the result would appear to be a need for careful consideration of the problem with a view to finding some satisfactory solution.

As to how it should be done, my own conclusions approve the plans followed by the American Smelting and Refining Company, by the Plymouth Cordage Company, and by the Endicott Johnson Corporation. These companies use the normal stock approach and separate inventory quantities into two parts, a minimum and an excess or speculative portion. The excess over normal is valued at cost or market, whichever is lower; price gains and losses arising from this portion of the inventory are included in annual

profits exactly as they are by companies entirely avoiding the question. The minimum quantities are also included in inventory at cost or market, whichever is lower, but a reserve is maintained at the amount of the difference between current values and base values. This reserve is shown on the balance sheet on the liability side; it is not deducted from the inventory as in the case of the National Lead Company. There is thus a full disclosure of policy and amounts and a maximum comparability with statements of companies not following the same method.

Inventory reserve plans have suffered from the taint of unorthodoxy. However, contrary to general opinion, they are used in a considerable number of large and important companies in statements which have been certified by reputable accounting firms. In a period of rising prices their use should be extended. While I personally like the treatment accorded the problem by the American Smelting and Refining Company, Plymouth Cordage Company, and the Endicott Johnson Corporation, I would not rest my case on a particular procedure. It is not nearly so important which treatment is selected as it is that there be wider acknowledgment of the need for doing something.

## APPENDIX

### PLYMOUTH CORDAGE COMPANY

### BALANCE SHEET, SEPTEMBER 30, 1936

ASSETS

| | |
|---|---|
| Cash items and Securities | $3,385,317.01 |
| Receivables—net | 779,449.00 |
| Merchandise and Supplies—At cost or market, whichever lower | 5,191,457.34 |
| TOTAL CURRENT ASSETS | $9,356,223.35 |
| Deferred Charges | 175,605.22 |
| Loans to Employees | 48,406.91 |
| Miscellaneous Securities and Stock of Subsidiaries | 480,330.79 |
| Fixed Assets—less reserves | 3,611,884.36 |
| | $13,672,450.63 |

LIABILITIES

| | |
|---|---|
| TOTAL CURRENT LIABILITIES | $ 484,506.93 |
| Pension and Insurance Fund—Employees | 53,849.49 |
| Reserve Revaluing Normal Inventory | 1,098,800.00 |
| Capital Stock—Less in Treasury | 6,891,580.00 |
| Capital Surplus | 1,029,290.16 |
| Operating Surplus | 4,114,424.05 |
| | $13,672,450.63 |

### CONDENSED PROFIT AND LOSS AND OPERATING SURPLUS ACCOUNT

| | | |
|---|---|---|
| *Operating Profit*—After regular charge for Depreciation of Plant and with Inventories taken at the lower of Cost or Market | | $1,151,877.48 |
| Deduct—Addition to Reserve Revaluing Normal Inventories | | 426,178.00 |
| | | $ 725,699.48 |
| *Miscellaneous Profit and Loss and Surplus Items* | | |
| Add Other Income | $104,133.36 | |
| Deduct—Reserve for Taxes, adjustment of prior taxes, and miscellaneous surplus items | 186,529.68 | *82,396.32* |
| | | $ 643,303.16 |
| Deduct—Advances and stock written off | | 177,372.17 |
| *Net Addition to Operating Surplus before Dividends* | | $ 465,930.99 |
| Dividends Declared | | 379,085.58 |
| *Net Addition to Operating Surplus for the Year* | | $ 86,845.41 |
| Operating Surplus Beginning of Year | | 4,027,578.64 |
| Operating Surplus End of Year | | $4,114,424.05 |

## APPENDIX

PLYMOUTH CORDAGE COMPANY (Continued)

In the Annual Report of September 30, 1936, the Treasurer includes a paragraph as follows:

*Inventory Reserve*

We have spoken of an inventory reserve in previous reports, pointing out that losses in value of inventory investment appear inevitable on the next down-swing of prices and that the provision of a reasonable reserve supplies a cushion which will absorb at least a part of these unavoidable losses. Continued study of this subject leads us to the belief that our aim should be to maintain a reserve sufficient to revalue down to previously experienced low levels such amount of inventory as may be required to operate the business at a volume reasonably to be expected. Because of selling customers of the trade, and the fact that our raw materials come from great distances, the amount of inventory so required is in the aggregate fairly large, both in physical volume and in value, with of course correspondingly large losses in value in case of price decline.

Regardless of the probability at any time of a decline in price, this normal inventory so required is just as necessary to continued operation as buildings and machinery, and shrinkage in its value appears to be inescapable. Therefore, as we see it, to the extent that it is possible, these losses should be anticipated as circumstances permit and, as explained last year, current profit or loss presented only after the revaluation of this normal inventory.

Investment in inventory in excess of the normal required represents a market operation which may or may not be profitable, and the results therefrom should be reflected in the current figures.

Possibly we should point out that the new Federal tax on undistributed net income may present a real problem in maintaining the reserve we have been discussing, as that law does not recognize (by relieving such reserves from tax) the necessity or desirability of providing this protection. For a business like ours, requiring a considerable inventory investment with accompanying and unavoidable fluctuations in value, this will be of particular moment. This new law which taxes undistributed net income does not apply to our fiscal year just closed.

## APPENDIX

### SWIFT AND COMPANY

Included among Current Assets in the Consolidated Balance Sheet of October 26, 1935, were the following items:

INVENTORIES—Products where cost was not ascertainable, were valued at approximate market prices, allowing for estimated selling expenses; other products and ingredients and supplies at the lower of cost or market—

| | |
|---|---|
| Product | $92,405,143.93 |
| Ingredients and Supplies | 5,578,276.38 |
| | $97,983,420.31 |

Included among "Reserves" on the liability side of the same balance sheet was the following:

| | |
|---|---|
| Reserve for Inventory Price Decline | $16,767.000.00 |

### CONSOLIDATED INCOME STATEMENT AND SURPLUS ACCOUNT

for the Period from October 27, 1934 to October 26, 1935

| | |
|---|---|
| Sales less Cost of Goods Sold | $34,918,623.65 |
| Other Operating Expenses | 13,464,312.83 |
| Operating Income | $21,454,310.82 |
| Other Income | 1,186,759.00 |
| | $22,641,069.82 |
| Interest Charges | 2,479,976.55 |
| | $20,161,093.27 |
| Provision for Income Tax | 2,509,641.32 |
| | $17,651,451.95 |
| Special Deductions: | |
| Writing off Unamortized Discount and Intangible Assets | 2,884,149.56 |
| Balance for Year | $14,767,302.39 |
| Appropriation for Inventory Price Decline | 6,000,000.00 |
| Balance to Surplus Account | $ 8,767,302.39 |

## APPENDIX

### INTERNATIONAL HARVESTER COMPANY

Included among the Current Assets on the Consolidated Balance Sheet, December 31, 1935, were the following items:

| | |
|---|---|
| INVENTORIES: | |
| Raw Materials, Work in Process, Finished Products, etc., at lower of cost or market | $111,743,686.32 |
| Deduct: Inventory Reserve | 13,500,000.00 |
| | $ 98,243,686.32 |

### INCOME ACCOUNT FOR 1935

| | | |
|---|---|---|
| Sales | | $217,583,447.31 |
| Deduct: | | |
| Cost of Goods Sold, Selling, Operating, Administrative Expenses, etc. | $188,012,498.89 | |
| Ore and Coal Depletion | 850,535.80 | |
| Plant Depreciation | 7,842,363.91 | |
| Addition to Inventory Reserve | 5,000,000.00 | |
| Reserve against Foreign Losses | 4,000,000.00 | |
| | | 205,705,398.60 |
| Net Operating Income | | $ 11,878,048.71 |
| Add: Other Income | | 7,740,189.32 |
| Profit for Year 1935 | | $ 19,618,238.03 |

## APPENDIX

THE GOODYEAR TIRE AND RUBBER COMPANY, 1925

Included as a Current Asset on the Consolidated Balance Sheet, December 31, 1925, was the following item:

Inventories, at cost or market, whichever is lower. $15,883,470.47

Included on the Liability side of the same balance sheet under Reserves was the following item:

Special raw material reserve..... $ 7,500,000.00

### PROFIT AND LOSS AND SURPLUS ACCOUNT

for the Year Ending December 31, 1925

| | |
|---|---|
| Total Net Sales ..... | $205,999,829.57 |
| Net Sales of Akron ..... | $169,470,112.10 |
| Deduct: Manufacturing cost, selling, admin. and general expense and provision for Fed. income taxes..... | 151,822,651.09 |
| | $ 17,647,461.01 |
| Add: Surplus net operating profits of subsidiary companies and foreign branches, and other income..... | 8,637,211.03 |
| Total Earnings before Interest and Other Charges..... | $ 26,284,672.04 |
| Deduct: Interest charges ..... | 3,970,199.39 |
| | $ 22,314,472.65 |
| Deduct: Other charges (proportion of discount on funded debt, etc., loss on properties liquidated)..... | 1,308,573.81 |
| Total Profits for Year ..... | $ 21,005,898.84 |
| Deduct: Special raw material reserve..... | 7,500,000.00 |
| Balance carried to Surplus account ..... | $ 13,505,898.84 |
| Add: Surplus December 31, 1924..... | 22,798,576.51 |
| | $ 36,304,475.35 |
| Deduct: Dividends ..... | 5,655,156.00 |
| Surplus at December 31, 1925..... | $ 30,649,319.35 |

## APPENDIX

### THE GOODYEAR TIRE AND RUBBER COMPANY 1926

Included under Current Assets on the Consolidated Balance Sheet, December 31, 1926, was the following item:

| | |
|---|---|
| Inventories, at cost or market, whichever is lower.... | $67,915,299.69 |

Included on the Liability side of the same balance sheet under Reserves was the following item:

| | |
|---|---|
| Special raw material reserve..... | $2,750,000.00 |

### CONSOLIDATED PROFIT AND LOSS AND SURPLUS ACCOUNT

for the Year Ending December 31, 1926

| | | |
|---|---|---|
| Net Sales ..... | | $230,161,356.57 |
| Deduct—Manufacturing cost and charges (including depreciation), selling, administrative and general expenses, and provision for Federal income taxes (*after charging excess cost of rubber and cotton to the net amount of $5,250,000 to special raw material reserve previously created therefor*) ..... | | 215,240,427.87 |
| | | $ 14,920,928.70 |
| Add—Other income ..... | | 1,517,961.78 |
| Total Profits before Interest and Other Charges..... | | $ 16,438,890.48 |
| Deduct—Interest and other charges..... | | 6,336,297.14 |
| Total Profits for Year..... | | $ 10,102,593.34 |
| Deduct—Profits of subsidiary companies applicable to stocks not held by The Goodyear Tire & Rubber Company..... | | 1,303,454.62 |
| | | $ 8,799,138.72 |
| Add—Surplus December 31, 1925..... | | 30,649,319.35 |
| | | $ 39,448,458.07 |
| Deduct—Dividends paid by The Goodyear Tire & Rubber Co. | | 8,743,444.00 |
| Surplus at December 31, 1926..... | | $ 30,705,014.07 |

## APPENDIX

### ENDICOTT JOHNSON CORPORATION

Excerpts from the November 30, 1936 Annual Report of the Endicott Johnson Corporation:

1. FROM THE STATEMENT OF EARNED SURPLUS FOR THE YEAR

*Deductions*

Appropriation for reserve at December 1, 1935, in order to give effect to the normal stock method of inventory valuation.....$1,048,600

2. FROM THE STATEMENT OF PROFIT AND LOSS FOR THE YEAR

*Cost of Goods Sold* (material, labor, direct and indirect manufacturing expense) including $111,286 transferred to reserve in order to give effect for the year to the normal stock method of inventory valuation..$52,125,759

3. FROM THE BALANCE SHEET, NOVEMBER 30, 1936

Asset side

*Current Assets*

Inventories, on the basis of cost or market whichever is lower (See Note (1), and reserve per contra):

| | | |
|---|---|---|
| Finished Footwear | $10,356,211 | |
| Footwear in Process | 924,207 | |
| Raw Materials on hand and in transit | 6,075,632 | |
| Miscellaneous Supplies | 915,840 | $18,271,890 |

Liability side

*Reserves*

Reserve for reduction of normal inventories to fixed prices...$1,159,886 (See Note (1))

*Footnotes*

NOTE (1): The inventories of the Corporation treated as normal and the fixed prices to which they are reduced are as follows:

| | *Fixed Prices* |
|---|---|
| Hide value in (a) raw hides and hides in process (26,000,000 lbs.); (b) own upper leather (5,500,000 lbs.); (c) own sole leather (1,600,000 lbs.); and (d) upper leather in footwear (12,000,000 lbs.) | 7 cents per lb. |
| Purchased upper leather (1,000,000 feet) | 13 cents per ft. |
| Rubber, crude and in footwear (2,000,000 lbs.) | 5 cents per lb. |

Inventories in excess of these normals remain on the basis of cost or market, whichever is lower.

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